## **Claims**

## What is claimed is:

- 1. As isolated nucleic acid molecule comprising a polynucleotide selected from the group consisting of:
- (a) a polynucleotide encoding amino acids from about 1 to about188 of the amino acid sequence contained in Figure 1;
- (b) a polynucleotide encoding amino acids from about 2 to about188 of the amino acid sequence contained in Figure 1;the polynucleotide complement of the polynucleotide of (a) or (b); and
- (c) a polynucleotide at least 90% identical to the polynucleotide of (a), (b) or (c).
- 2. An isolated nucleic acid molecule comprising about 10 to about 564 contiguous nucleotides from the coding region identified in Figure 1.
- 3. An isolated nucleic acid molecule comprising about 50 to about 564 contiguous nucleotides from the coding region of the nucleic acid sequence in Figure 1.
- 4. An isolated nucleic acid molecule comprising about 100 to about 400 contiguous nucleotides of the coding region of the nucleic acid sequence contained in Figure 1.
- 5. An isolated nucleic acid molecule comprising about 10 to about 564 contiguous nucleotides from the coding region contained in Figure 1.
- 6. An isolated nucleic acid molecule comprising a polynucleotide encoding a polypeptide wherein, except for at least one conservative amino acid substitution, said polypeptide has an amino acid sequence selected from the group consisting of:
- (a) amino acids from about 1 to about 188 of the amino acid sequence in Figure 1; and

- (b) amino acids from about 2 to about 188 of the amino acid sequence in Figure 1.
- 7. The isolated nucleic acid molecule of claim 1, which is DNA.
- 8. A method of making a recombinant vector comprising inserting a nucleic acid molecule of claim 1 into a vector in operable linkage to a promoter.
- 9. A recombinant vector produced by the method of claim 8.
- 10. A method of making a recombinant host cell comprising introducing the recombinant vector of claim 9 into a host cell.
- 11. A recombinant host cell produced by the method of claim 10.
- 12. A recombinant method of producing a polypeptide, comprising culturing the recombinant host cell of claim 11 under conditions such that said polypeptide is expressed and recovering said polypeptide.
- 13. An isolated polypeptide comprising amino acids at least 95% identical to amino acids selected from the group consisting of:
- (a) amino acids from about 1 to about 188 of the amino acid sequence contained in Figure 1; and
- (b) amino acids from about 2 to about 188 of the open amino acid sequence contained in Figure 1.
- 14. An isolated polypeptide wherein, except for at least one conservative amino acid substitution, said polypeptide has an amino acid sequence selected from the group consisting of:
- (a) amino acids from about 1 to about 188 of the amino acid sequence in Figure 1; and

- (b) amino acids from about 2 to about 188 of the amino acid sequence in Figure 1.
- 15. An isolated polypeptide comprising amino acids selected from the group consisting of:
- (a) amino acids from about 1 to about 188 of the amino acid sequence in Figure 1; and
- (b) amino acids from about 2 to 188 of the amino acid sequence in Figure 1.
- 16. An epitope-bearing portion of the polypeptide identified in Figure 1.
- 17. The epitope-bearing portion of claim 16, which comprises about 5 to about 30 contiguous amino acids of the protein in Figure 1.
- 18. The epitope-bearing portion of claim 17, which comprises about 10 to about 15 contiguous amino acids of the protein in Figure 1.
- 19. An isolated antibody that binds specifically to the polypeptide of claim15.
- 20. A monoclonal antibody according to claim 19.
- 21. A method of inhibiting apoptosis or proliferation of a cancer cell, comprising inhibiting expression of SCC-S2 in said mammalian cell.
- 22. The method of claim 21, wherein said mammalian cell is transformed with a vector encoding an antisense oligonucleotide corresponding tot he SCC-S2 sequence in Figure 1.
- 23. An antisense oligonucleotide that inhibits the expression of SCC-S2 in a mammalian cell and has a phosphodiester backbone or modified base composition.

- 24. The antisense oligonucleotide of claim 23 which is contained in a liposomal formulation.
- 25. A method of treating cancer characterized by SCC-S2 overexpression by administration of an antisense oligonucleotide ,ribozyme or small interfering RNA (SI RNA) molecule that inhibits SCC-S2 expression.
- 26. A method of treating cancer characterized by SCC-S2 overexpression comprising administering an antibody that specifically binds to SCC-S2.
- 27. A method of treating cancer characterized by SCC-S2 overexpression comprising administration of an antibody that specifically binds to SCC-S2, antisense oligonucleotide, ribozyme or small interfering RNA (SI RNA) molecule in combination with radiation, radionucleides, anticancer drugs or other biological agents.
- 28. A method of treating cancer characterized by SCC-S2 overexpression comprising administration of antibody that specifically binds SCC-S2, antisense oligonucleotide, ribozyme or small interfering RNA (SI RNA) molecule contained in a liposomal formulation, in combination with radiation, radionucleides, anticancer drugs or other biological agents.
- 29. A method of detecting cancer characterized by SCC-S2 overexpression comprising detecting the levels of SCC-S2 expression and correlating said level of expression to the presence or absence of cancer.
- 30. The method of claim 29 which is effected by using a cDNA that hybridizes SCC-S2 and mRNA.
- 31. The method of claim 29 which is effected y using an antibody that specifically binds SCC-S2.
- 32. A method for inhibiting cancer cell proliferation and/or metastasis in a cancer patient comprising administering an antibody that specifically binds to

- SCC-S2, small molecule SCC-S2 inhibitor, or a ribozyme or antisense oligonucleotide that inhibits SCC-S2 expression.
- 33. A method for identifying small molecule inhibitors of the SCC-S2 protein represented by the polypeptide of Figure 1, wherein the method comprises the steps of:
- (a) determining a three dimensional structure of the SCC-S2 protein;
  - (b) identifying an active site in the structure determined in step (a);
- (c) computationally screening a database of compounds to identify molecules that fit in the active site of the protein and selecting the molecules with the highest calculated binding affinity to the protein; and
- (d) testing in vitro the SCC-S2 inhibitory activity of the molecules selected in step (c) and identifying one or more SCC-S2 inhibitors.
- 34. The method of Claim 33, wherein determining the three dimensional structure of the SCC-S2 protein comprises determining the structure through X-ray crystallography.
- 35. The method of Claim 33, wherein determining the three dimensional structure of the SCC-S2 protein comprises identifying a protein of known structure that is homologous to SCC-S2 and modeling the structure of the SCC-S2 protein based on the structure of the homologous protein.
- 36. A method for inhibiting cancer cell proliferation and/or metastasis in a cancer patient comprising administering to the patient a therapeutically effective amount of a compound identified according to Claim 33.
- 37. A method for designing small molecule inhibitors of the SCC-S2 protein represented by the polypeptide of Figure 1, wherein the method comprises the steps of:
- (a) determining a three dimensional structure of the SCC-S2 protein;
  - (b) identifying an active site in the structure determined in step (a);

- (c) computationally modeling a compound that is complementary to the active site of the SCC-S2 protein; and
- (d) testing in vitro the SCC-S2 inhibitory activity of the molecules selected in step (c) and identifying one or more SCC-S2 inhibitors.
- 38. The method of Claim 37, wherein determining the three dimensional structure of the SCC-S2 protein comprises determining the structure through X-ray crystallography.
- 39. The method of Claim 37, wherein determining the three dimensional structure of the SCC-S2 protein comprises identifying a protein of known structure that is homologous to SCC-S2 and modeling the structure of the SCC-S2 protein based on the structure of the homologous protein.
- 40. A method for inhibiting cancer cell proliferation and/or metastasis in a cancer patient comprising administering to the patient a therapeutically effective amount of a SCC-S2 inhibitor designed according to Claim 37.
- 41. The method of Claim 36, further comprising obtaining a tumor tissue from the patient and determining the degree of tumor growth and metastasis prior to and after administrating to the patient the SCC-S2 inhibitor identified according to Claim 33.
- 42. The method of Claim 40, further comprising obtaining a tumor tissue from the patient and determining the degree of tumor growth and metastasis prior to and after administering to the patient the SCC-S2 inhibitor designed according to Claim 37.